11. (New) A telecommunications network, comprising:

plural interconnected routers; and

at least one protecting router comprising a router table, the router table having an entry identifying an alternative route around an adjacent router to the protecting router in case of failure of the adjacent router.

12. (New) The telecommunications network of Claim 11, in which the router table has an entry identifying a port associated with the alternative route.

13. (New) The telecommunications network of Claim 11, in which the alternative route includes a cycle of routers directly connected to the adjacent router and there is associated with each router in the cycle of routers a routing table with an entry identifying the cycle of routers.

14. (New) A protecting router, comprising a router table, the router table having an entry identifying a cycle of routers directly connected to an adjacent router to the protecting router, the cycle of routers not including the adjacent router.

15. (New) The protecting router of Claim 14, in which the router table has an entry identifying a port associated with the cycle of routers.

16. (New) The protecting router of Claim 14, in which the protecting router has a router table in which is stored, for each adjacent router to the protecting router, an entry identifying a cycle of routers directly connected to the adjacent router to the protecting router, each cycle of routers not including the respective adjacent router.

17. (New) A data packet for a network of routers, the data packet comprising:

an ID field that specifies a cycle of routers in which the routers in the cycle are all adjacent a router not in the cycle and a data field.

18. (New) The packet of Claim 17, further comprising a path cost field.

19. (New) The data packet of Claim 17, further comprising a field identifying a router that created the data packet.

20. (New) A method of protecting against router failure in a network, in which the network includes plural interconnected routers, the method comprising the step of:

storing at a protecting router an entry identifying a cycle of routers that form at least one alternative route around an adjacent router to the protected router, in which the cycle of routers includes all routers directly connected to the adjacent router and not the adjacent router.

REPLACEMENT CLAIM PAGES

21. (New) The method of Claim 20, further comprising the step of:

upon failure of the adjacent router, routing all data packets whose preferred path includes the adjacent router, around the alternative route beginning at the protected router.

22. (New) The method of Claim 21, in which the preferred path is the least cost path.

23. (New) The method of Claim 20, in which each data packet routed around the alternative route contain an ID field that identifies the cycle of routers, a path cost field containing the cost of the least cost path and a data field.

24. (New) The method of Claim 20, in which each router in the alternative route has a router table having an entry that identifies the cycle of routers and continues to route the data packet around the alternative route until the path cost from a router in the alternative route to the destination of the data packet is less than the cost of the least cost path.

25. (New) The method of Claim 22, further comprising the step of:

at each router in the cycle of routers, assessing whether to continue on the cycle of routers or leave the cycle of routers at that router.

26. (New) The method of Claim 25, in which the assessment is made by assessing the cost of the route leaving the cycle at that router.

27. (New) The method of Claim 26, in which the assessment is made by comparing the cost of the route leaving the cycle at that router with the cost of the route had the router not failed.

28. (New) The method of Claim 20, further comprising the step of:

removing data packets from the cycle of routers when data packets have returned to the entry point of the data packet onto the cycle.

29. (New) A telecommunications network comprising:

plural interconnected routers; and

each router comprising a router table, the router table having an entry identifying an alternative route around an adjacent router to the router in case of failure of the adjacent router.

30. (New) A telecommunications network, comprising:

plural interconnected routers; and

each router being directly connected to a set of protecting routers, each router in the set of protecting routers comprising a router table, the router table having an entry identifying an alternative route around the router to which the set of protecting routers is directly connected in case of failure of the router.